

LM-79-08 Test Report

For

Antec Lighting Inc

(Brand Name: )

Uniy C, 3979 E Guasti Road, Ontario, CA 91761

Architectural Flood and Spot Luminaires

Model name(s): AOK-300WoF-HV-X5-XX-XX70-30-P

Remark: The first "XX" can be "00" for without sensor or "SN" for with Photocontrol function. The second "XX" represents different CCT as below: 30=3000K, 40=4000K, 50=5000K, 57=5700K; "P" can be blank, "A" or "B", blank is ceiling and wall mounted, "A" stands for Ceiling mounted only, "B" stands for Wall mounted only.

Representative (Tested) Model:
AOK-300WoF-HV-X5-00-3070-30-A
AOK-300WoF-HV-X5-00-5770-30-A

Model Difference: All construction and rating are the same, except CCT.

Test & Report By:

Clint Chen

Engineer: Clint Chen

Date: Jul.29,2018

Review By:

John Li

Manager: John Li

Note: 1. The results contained in this report pertain only to the tested samples.

2. This report does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Laboratory: Standard-Tech Co., Ltd Testing Center
NVLAP CODE: 201011-0

Report Format Number STD/QR4909-A/2

Address: Standard-Tech Building, No.6 Guanhong Road,Guangzhou Science City, Guangzhou 510663, China

Tel: 8620-3229 0320

Fax: 8620-32290422

<http://www.standard-tech.com>

1.1 Product Information:

Organization Name	Antec Lighting Inc	
Brand Name		
Model Number	AOK-300WoF-HV-X5-XX-XX70-30-P	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Architectural Flood and Spot Luminaires	
Rated Voltage / Frequency	200-480V ac, 50/60 Hz	
Nominal Power	300W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K, 4000K, 5000K, 5700K.	
LED Manufacturer	Lumileds	
LED Model	L150-3070500600000 L150-5770500600000	
Sample Number	JAE180410-K1(3000K), K2(5700K)	
Lamp Length	--	mm
Lamp Width	--	mm
Number of Units (modular products)	N/A	s
Photo		
		

1.2 Test Specifications:

Date of Receipt	Jul.23,2018
Date of Test	Jul.25,2018
Test item	<ol style="list-style-type: none"> 1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity Coordinate 7. Electrical Parameters
Reference Standard	<ol style="list-style-type: none"> 1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products 2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products 3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources 4. CIE 15-2004 Technical Report Colorimetry 5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source 6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems
Reference Work Instruction	QD25

1.3 Test Methods**1) Photometric and Light Distribution Measurement – Goniophotometer Method:**

Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals.

2) Chromaticity Measurement – Sphere-Spectroradiometer Method:

Chromaticity parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral power distribution taken at 5 nm intervals over the range of 380 to 780 nm.

3) Electrical Measurements:

Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Voltage, frequency, current, power, power factor and total harmonic distortion were measured by and read from the power meter.

2.1 Electrical, Photometric and Chromaticity Measurements
(Refer to Work Instruction QD25)

Test date	2018-07-25	Test Ambient:	25.2 °C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	AOK-300WoF-HV-X5-00-3070-30-A		

Electrical Measurement :

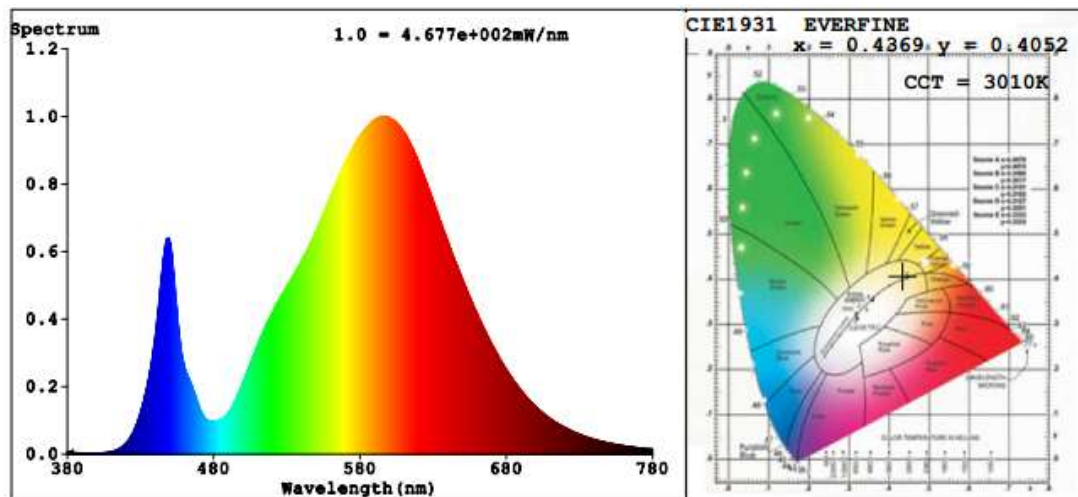
Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JAE180410	277.0	60	1.1497	312.3	0.9806	9.70
-K1	480.0	60	0.7001	309.9	0.9222	13.75
DLC Pass Criteria					$\geq 0.9(-3\%)$	$\leq 20(+5)$

Chromaticity Measurement -Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	277.0	R1	70	R9	0
Frequency (Hz)	60	R2	82	R10	59
CCT (K)	3010	R3	93	R11	64
Duv	0.0004	R4	70	R12	49
Chromaticity (x, y)	x=0.4369 y=0.4052	R5	69	R13	72
Chromaticity (u', v')	u'=0.2500 v'=0.5218	R6	75	R14	96
Color Rendering Index (CRI)	73.2	R7	80	R15	63
R9	0	R8	48	--	--

Photometric Measurement –Goniophotometer Method:

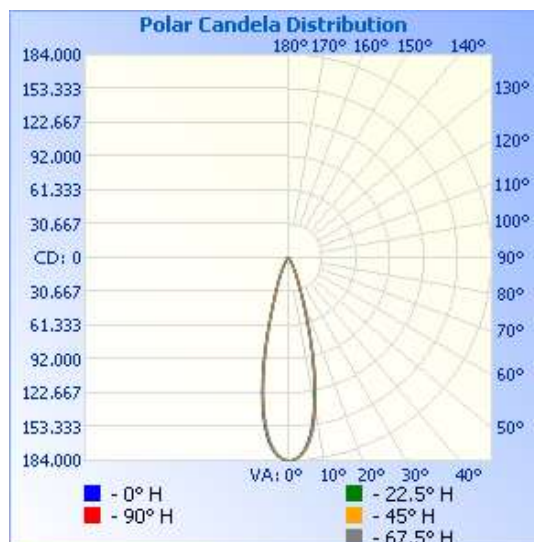
Parameter	Result		DLC V4.3 Pass Criteria	
Test Voltage (V)	277.0	480.0	--	
Frequency (Hz)	60	60		
Total Luminous (lm)	48560	48455	>=30000(-10%)	
Luminous Efficacy (lm/W)	155.49	156.36	Standard: >= 100(-3%)	Premium: >= 120(-3%)
Most Worst Luminous/Highest Watts	155.16			
Zonal lumens in the 0-90 °zone (%)	99.6	--	>=85(-3)	
Beam Angle (°)	27.4	--	--	
Center Beam Candle Power (cd)	183950	--	--	

Spectral Power Distribution & Chromaticity Diagram

Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	43,607.6	89.9%
0-40	45,732.8	94.3%
0-60	47,468.7	97.8%
60-90	869.5	1.8%
70-100	333.0	0.7%
90-120	7.3	0%
0-90	48,338.2	99.6%
90-180	180.0	0.4%
0-180	48,518.2	100%

Lumens Per Zone					
Zone	Lumens	%Total	Zone	Lumens	%Total
0-10	15,341.4	31.6%	90-100	3.2	0%
10-20	20,739.9	42.7%	100-110	1.8	0%
20-30	7,526.4	15.5%	110-120	2.3	0%
30-40	2,125.2	4.4%	120-130	3.6	0%
40-50	966.1	2.0%	130-140	11.9	0%
50-60	769.8	1.6%	140-150	35.7	0.1%
60-70	539.8	1.1%	150-160	59.2	0.1%
70-80	271.9	0.6%	160-170	45.9	0.1%
80-90	57.8	0.1%	170-180	16.5	0%

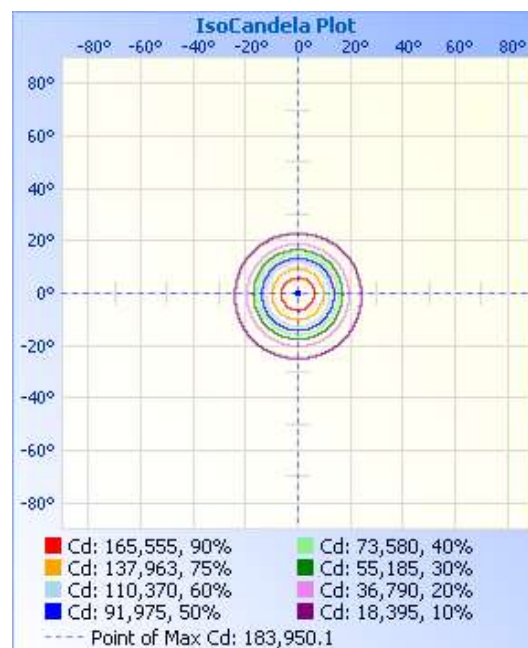
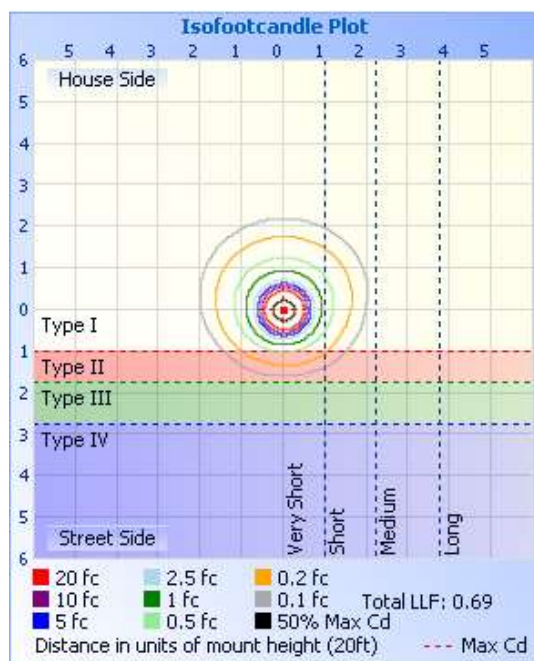
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width
17.0ft	636.5 fc	8.3 ft 8.3 ft
34.0ft	159.1 fc	16.6 ft 16.6 ft
51.0ft	70.7 fc	24.9 ft 24.9 ft
68.0ft	39.8 fc	33.2 ft 33.2 ft
85.0ft	25.5 fc	41.5 ft 41.5 ft
102.0ft	17.7 fc	49.8 ft 49.8 ft

■ Vert. Spread: 27.4°
■ Horiz. Spread: 27.4°



Laboratory: Standard-Tech Co., Ltd Testing Center

NVLAP CODE: 201011-0

Report Format Number STD/QR4909-A/2

Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

Tel: 8620-3229 0320

Fax: 8620-32290422

<http://www.standard-tech.com>

Table--1

UNIT: *100cd

C (DEG) Y (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	
0	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	
5	1717	1724	1731	1738	1736	1744	1749	1753	1752	1746	1742	1738	1730	1723	1710	1712	
10	1315	1317	1321	1336	1348	1367	1382	1392	1399	1394	1389	1375	1354	1336	1326	1315	
15	723	726	731	743	757	777	793	803	806	801	794	783	772	758	740	722	
20	310	303	301	300	304	315	329	340	362	358	356	353	349	343	330	324	
25	157	149	143	139	137	143	151	160	168	172	173	174	172	167	162	159	
30	70.3	65.5	60.5	59.2	55.9	58.0	62.1	69.1	75.3	80.0	83.9	82.0	81.6	76.8	78.1	74.6	
35	30.3	27.6	25.6	25.3	23.4	23.3	25.5	28.6	32.9	35.7	37.9	36.4	36.5	35.2	36.7	34.7	
40	16.7	15.0	13.5	12.7	11.9	12.2	13.3	15.4	17.1	19.0	19.7	18.9	18.8	19.0	19.4	18.5	
45	12.7	11.1	9.93	8.68	8.16	8.70	9.49	11.0	12.9	14.3	15.0	14.9	14.9	14.9	15.1	14.4	
50	10.7	9.14	7.75	6.43	6.09	6.80	7.54	8.73	10.7	12.3	13.2	13.1	13.1	13.1	13.1	12.4	
55	9.02	7.39	5.82	4.66	4.43	5.08	6.19	6.81	8.85	10.7	11.6	11.5	11.5	11.5	11.5	10.7	
60	7.50	5.64	4.27	3.58	2.97	3.27	4.66	5.59	7.15	9.15	10.1	10.1	10.1	10.1	10.1	9.14	
65	5.96	4.08	2.81	1.37	1.23	1.41	2.82	4.32	5.49	7.59	8.56	8.58	8.55	8.55	8.46	7.54	
70	4.33	2.95	1.08	0.04	0.03	0.05	1.18	2.85	4.03	5.84	6.77	6.83	6.79	6.78	6.66	5.77	
75	2.69	1.70	0.47	0.01	0.01	0.02	0.46	1.72	2.73	3.91	4.67	4.77	4.67	4.65	4.55	3.82	
80	1.32	0.80	0.19	0.02	0.01	0.02	0.20	0.91	1.49	2.15	2.61	2.67	2.61	2.56	2.46	2.02	
85	0.34	0.22	0.06	0.02	0.02	0.03	0.06	0.29	0.49	0.71	0.87	0.91	0.86	0.82	0.77	0.59	
90	0.02	0.01	0.01	0.01	0.02	0.02	0.01	0.02	0.01	0.06	0.09	0.12	0.12	0.11	0.09	0.06	
95	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.03	0.04	0.06	0.06	0.06	0.05	0.02	
100	0.01	0.02	0.01	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.02	0.03	0.03	0.03	0.02	0.01	
105	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
110	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	
115	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.02	0.02	0.01	0.01	0.02	0.01	0.01	
120	0.04	0.03	0.03	0.04	0.03	0.03	0.04	0.03	0.03	0.02	0.02	0.01	0.01	0.02	0.02	0.02	
125	0.04	0.04	0.04	0.04	0.05	0.05	0.06	0.05	0.04	0.04	0.03	0.02	0.02	0.03	0.02	0.03	
130	0.08	0.08	0.06	0.07	0.09	0.09	0.09	0.10	0.10	0.08	0.04	0.04	0.05	0.05	0.04	0.07	
135	0.17	0.16	0.10	0.12	0.14	0.16	0.14	0.19	0.21	0.18	0.09	0.10	0.13	0.13	0.11	0.17	
140	0.34	0.33	0.18	0.23	0.25	0.26	0.20	0.33	0.38	0.37	0.21	0.31	0.36	0.29	0.25	0.37	
145	0.54	0.68	0.32	0.48	0.48	0.51	0.30	0.67	0.64	0.77	0.33	0.71	0.79	0.57	0.46	0.75	
150	1.06	1.07	0.42	0.83	0.86	0.81	0.65	1.08	1.21	1.28	0.75	1.22	1.37	1.04	0.47	1.23	
155	1.48	1.36	0.50	1.13	1.29	1.08	0.70	1.40	1.64	1.64	1.42	1.53	1.82	1.49	1.12	1.64	
160	1.72	1.46	1.04	1.40	1.71	1.38	0.98	1.57	1.89	1.83	1.64	1.39	2.05	1.86	1.41	1.53	
165	1.66	1.21	1.64	1.50	1.79	1.41	1.37	1.56	1.78	1.87	1.61	1.60	2.06	2.07	1.61	1.59	
170	1.24	1.46	2.01	1.49	1.63	1.51	1.67	1.52	1.38	1.40	1.75	1.97	1.85	1.99	1.72	1.87	
175	1.64	1.56	2.05	1.59	1.56	1.72	1.83	1.72	1.71	1.71	1.73	1.97	1.75	1.79	1.80	1.94	
180	1.62	1.63	1.99	1.72	1.64	1.83	1.88	1.62	1.60	1.60	1.61	1.96	1.70	1.64	1.80	1.86	

2.2 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction QD25)

Test date	2018-07-25	Test Ambient:	25.2 °C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	AOK-300WoF-HV-X5-00-5770-30-A		

Electrical Measurement :

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JAE180410	277.0	60	1.1373	311.1	0.9875	9.12
-K2	480.0	60	0.6876	307.4	0.9314	12.94
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

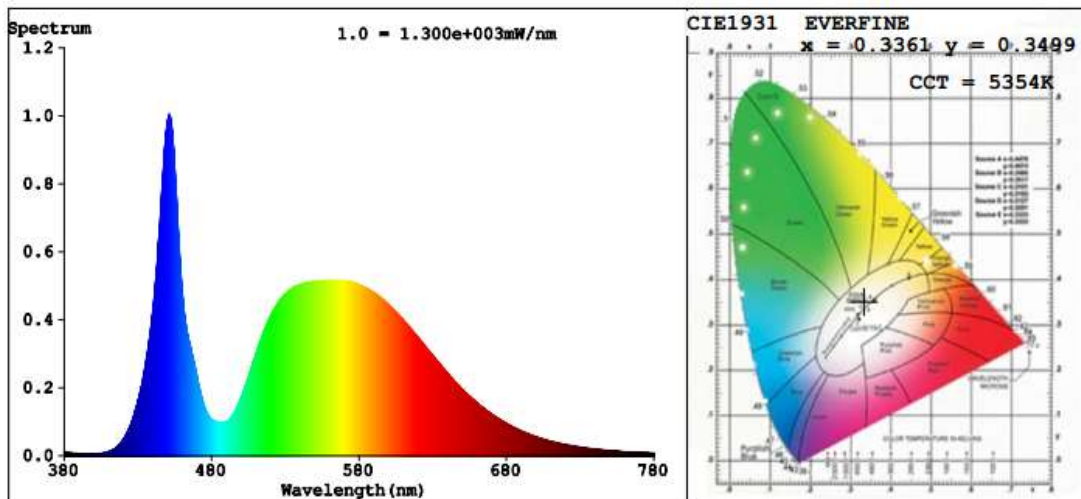
Chromaticity Measurement -Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	277.0	R1	71	R9	0
Frequency (Hz)	60	R2	78	R10	45
CCT (K)	5356	R3	80	R11	71
Duv	0.0033	R4	74	R12	40
Chromaticity (x, y)	x=0.3360 y=0.3506	R5	72	R13	72
Chromaticity (u', v')	u'=0.2056 v'=0.4829	R6	69	R14	89
Color Rendering Index (CRI)	73.4	R7	83	R15	67
R9	0	R8	60	--	--

Photometric Measurement –Spectroradiometer Method:

Parameter	Result		DLC V4.3 Pass Criteria	
Test Voltage (V)	277.0	480.0	--	
Frequency (Hz)	60	60		
Total Luminous (lm)	52231	51895	>=30000(-10%)	
Luminous Efficacy (lm/W)	167.89	168.82	Standard: >= 100(-3%)	Premium: >= 120(-3%)
Most Worst Luminous/Highest Watts	166.81			

Spectral Power Distribution & Chromaticity Diagram



Laboratory: Standard-Tech Co., Ltd Testing Center
NVLAP CODE: 201011-0

Report Format Number STD/QR4909-A/2

Address: Standard-Tech Building, No.6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

Tel: 8620-3229 0320

Fax: 8620-32290422

<http://www.standard-tech.com>

2.3 Performance Assessment:

Model name	CCT(K)	Total Luminous (lm)	Power (W)	Luminous Efficacy (lm/W)
AOK-300W _o F-HV-X5-00-3070-30-A	3000	48560	312.3	155.49
AOK-300W _o F-HV-X5-00-4070-30-A	4000	50028 ^{*1}	311.7 ^{*2}	160.50 ^{*3}
AOK-300W _o F-HV-X5-00-5070-30-A	5000	51497 ^{*1}	311.7 ^{*2}	165.21 ^{*3}
AOK-300W _o F-HV-X5-00-5770-30-A	5700	52231	311.1	167.89

*1: This value is calculated and the calculation formula is as below:

$$50028 = (52231 - 48560) / 5 * 2 + 48560$$

$$51497 = (52231 - 48560) / 5 * 2 + 48560$$

*2: This value is calculated and the calculation formula is as below:

$$311.7 = (312.3 + 311.1) / 2$$

*3: This value is calculated and the calculation formula is as below:

$$160.50 = 50028 / 311.7$$

$$165.21 = 51497 / 311.7$$

3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-331	2 meter Integrating Sphere	2018-07-01	2019-06-30
ST-R-327	Spectral analysis system HAAS-2000	2018-07-01	2019-06-30
D204	Standard Lamp	2018-07-12	2019-07-11
PF2010	Power Meter for Integrating Sphere	2018-07-01	2019-06-30
GO-R5000	Goniophotometer system	2018-07-01	2019-06-30
D908S	Standard Lamp	2018-07-12	2019-07-11
PF210	Power Meter for Goniophotometer	2018-07-07	2019-07-06
Expand Uncertainty: Photometric Measurement (Sphere):2.04%, k=2 Chromaticity Measurement(Sphere):28.8K, k=2 Photometric Measurement(Goniophotometer):2.36%, k=2			

******* END OF REPORT *******